

What is claimed is:

1 1. A method for obtaining heterologous immunoglobulin
2 from the milk of a transgenic mammal comprising the steps of:

3 a. introducing into the germline of said mammal
4 DNA comprising the protein-coding sequences of said
5 immunoglobulin, said DNA operatively linked at its 5' terminus to
6 a promoter sequence that supports the preferential expression of
7 said genes in mammary gland epithelial cells, and said DNA
8 operatively linked at its 3' terminus to a sequence containing a
9 polyadenylation site, and

10 b. obtaining milk from said mammal.

1 2. The method of claim 1 wherein said mammal is
2 selected from the group consisting of mice, cows, sheep, goats,
3 oxen, camels, and pigs.

1 3. The method of claim 1 wherein said promoter is
2 selected from the group consisting of the casein promoter, the
3 beta lactoglobulin promoter, the whey acid protein promoter, and
4 the lactalbumin promoter.

1 4. The method of claim 1 wherein said immunoglobulin
2 comprises heavy and light chains.

1 5. The method of claim 1 wherein said immunoglobulin
2 comprises a single polypeptide chain.

1 6. The method of claim 1 wherein said immunoglobulin
2 is of human origin.

1 7. The method of claim 1 wherein said immunoglobulin
2 is purified from the milk of said mammal.

1 8. A transgenic non-human mammal all of whose germ
2 cells and somatic cells contain recombinant DNA sequences

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3 encoding immunoglobulin heavy and light chains, wherein said
4 sequences are operatively linked at their 5' termini to a
5 promoter sequence that supports the preferential expression of
6 said genes in mammary gland epithelial cells, and operatively
7 linked at their 3' termini to a sequence containing a
8 polyadenylation site.

1 9. The transgenic mammal of claim 8 wherein said
2 mammal is selected from the group consisting of mice, cows,
3 sheep, goats, oxen, camels, and pigs.

1 10. The transgenic mammal of claim 8 wherein said
2 promoter is selected from the group consisting of the casein
3 promoter, the beta lactoglobulin promoter, the whey acid protein
4 promoter, and the lactalbumin promoter.

1 11. The transgenic mammal of claim 8 wherein said
2 immunoglobulin comprises heavy and light chains.

1 12. The transgenic mammal of claim 8 wherein said
2 immunoglobulin comprises a single polypeptide chain.

1 13. The transgenic mammal of claim 8 wherein said
2 immunoglobulin is of human origin.

1 14. An isolated purified DNA comprising in the 5' to
2 3' direction

3 a) 5' promoter sequences from the beta casein
4 gene,

5 b) a unique Xho I restriction site, and

6 c) 3' untranslated sequences from the goat beta
7 casein gene, wherein a) comprises nucleotides -6168 to -1 of the
8 goat beta casein, wherein nucleotide 1 is the first nucleotide of

9 the beta casein translation initiation codon, b) comprises the
10 sequence CGCGGATCCTCGAGGACC, and c) comprises the sequence

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